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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,500	12/04/2003	Tzu-En Ho	GEN0009-US	7563

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EXAMINER

MITCHELL, JAMES M

ART UNIT

PAPER NUMBER

2813

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/726,500

Applicant(s)

HO ET AL.

Examiner

James M. Mitchell

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 5-8 and 13-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 9-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This office action is in response to applicant's election filed June 16, 2005.

Election/Restrictions

Claims 5-8 and 13-16 are withdrawn¹ from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on June 16, 2005.

Applicant's election with traverse of the species of annealing prior to patterning² in the reply filed on June 16, 2005 is acknowledged. The traversal is on the ground(s) that a thorough search of one species would necessarily encompass a complete search of the non-elected species. This is not found persuasive because the species are independent inventions. See MPEP 808.01(a). Furthermore a thorough search of the species of annealing layers and then patterning silicide layers would not encompass a complete search of patterning layers that does not contain silicide.

The requirement is still deemed proper and is therefore made FINAL.

As for applicant allegation that claims 1-4 and 9-12 are generic to both species. Applicant is unpersuasive. Because independent claims 1 and 9 define elements (i.e. step b-c) not common to independent claim 5 and 13, and subsequently the species of

¹ Applicant in his response must use proper claim identifiers (i.e. withdrawn, amended etc.) or his response will be considered a deliberate nonresponsive wherein no shortened statutory period will be given for reply. See 37 CFR 1.121(c).

² Per applicant's cited claim numbers

claims 5 and 13 do not include all the limitations of claims 1 and 9, claims 1-4 and 9-12 are not generic. See MPEPE 806.04(D).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1-3 and 9-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Ohnishi et al. (U.S. 2005/0164441).

Ohnishi (Fig. 1A-D, 7A-C) disclose:

(cl. 1, 9) a method for manufacturing a stacked gate structure, the method comprising the steps of a) sequentially forming a dielectric layer (102), a polysilicon layer (103), a metal layer (104), a barrier layer (105), and a tungsten layer (106; Par. 0045) on a semiconductor substrate; b) performing a rapid thermal annealing (RTA) process (Par. 0051, 0066) and thereby forming a silicide layer (Par. 0051) as a result of the reaction between said metal layer and said polysilicon layer; and c) patterning said tungsten layer, said barrier layer and said silicide layer and said polysilicon layer to form said stacked gate structure (Fig. 2D; Par. 0051);

(cl. 2, 10) wherein said metal layer is tungsten (PA. 0045);
(cl. 3, 11) wherein said barrier layer is WN (Par. 0055);
(cont. cl. 9) performing ion implantation (Par. 0062), forming sidewall spacers (313) and performing another ion implantation (i.e. 315; Fig. 5A-B).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohnishi et al. (U.S. 2005/0164441) as applied to claim 1 and 9 and further in combination with Hong (U.S. 2005/0104108).

Ohnishi does not appear to explicitly use a RTA with nitrogen ambient, but Hong utilizes RTA with nitrogen ambient (Par. 0054).

It would have been obvious to incorporate using nitrogen ambient with the RTA of Ohnishi in order to form metal silicide as taught by Hong (Par. 0054) and as required by Ohnishi (108).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior discloses the use of nitrogen ambient in RTA to form silicide; and the formation of a stack gate including tungsten silicide.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Mitchell whose telephone number is (571) 272-1931. The examiner can normally be reached on M-F 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jmm
August 30, 2005

Carl Whitehead Jr.
CARL WHITEHEAD, JR.
SUPERVISORY PATENT EXAMINER
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